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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,159	02/09/2004	Tae-Duk Kim	1594.1316	5436
21171	7590	06/03/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005				IP, SHIK LUEN PAUL
		ART UNIT		PAPER NUMBER
		2837		

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/773,159	KIM, TAE-DUK	
	Examiner Paul Ip	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-28 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 09 February 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date: ____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2/9/04</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: ____ .

## DETAILED ACTION

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 2/9/04 in compliances with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Cohen et al (5,672,948).

With respect to claims 1, 7, 13, 19, 20, and 24, Cohen et al show in figure 1 a multi-pole brushless motor (12) having a plurality of multi-phase stator coils (14, 16, 18), an inverter (20), a counter electromotive voltage detector (50), a driver (36), and a controller 38. The comparator 66 detects a counter electromotive voltage after the driving voltage is turned off to determine a phase commutation point of time. Counter 38 determines the phase commutation point of time based on the determined elapsed

time and controlling the driver to perform phase commutation at the determined phase commutation point of time. See column 3 line 4 to column 4 line 3.

With respect to claims 2, 4, 5, 8, 10, 12, 14, 16, 18, 25, 27, and 28, the comparator 66 positive and negative inputs are connected to the coils (14, 16, 18) for detecting the point of time, which is earlier than the determined reference point of time by a preset time at the negative terminal corresponding to the determined elapsed time, as the phase commutation point of time

With respect to claims 3, 9, 11, 15, 17, 26, and 27, Cohen et al disclose at column 7 lines 33-34 using a proportional, integral derivative (PID) control function. It is inherent the preset time is proportional to the determined elapsed time.

With respect to claim 6, Cohen et al disclose at column 5 line 37 that the coils are 120 degrees out of phase.

With respect to claims 21-23, Cohen et al show in figures 1-3C that the coils are 120 degrees out of phase, and the zero crossing point is about half of the 60 degrees region. It is inherent that the half of the 60 degrees is equal to an electrical angle of 30 degrees.

4. Claims 1-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu et al (6,850,022).

With respect to claims 1, 7, 13, 19, 20, and 24, the patent to Liu et al shows in figure 1 a brushless motor 12, an inverter 18, a driver 20, a back emf detector 21, and a controller 22. Lui et al disclose at column 3 line 56-65 and column 4 lines 37 to 41 the

preset time, the elapsed time, and the phase commutation point of time as recited in the claims.

With respect to claims 2, 4, 5, 8, 10, 12, 14, 16, 18, 25, 27, and 28, Lui et al disclose at column 3 lines 56-65 the time difference to determine the commutation position as recited in the claims.

With respect to claims 3, 9, 11, 15, 17, 26, and 27, since Lui et al determine the time delay of the commutation position,  $d/dt$ , it is inherent to use proportional-integral function to perform the delay commutation as recited in the claims.

With respect to claim 6, Lui et al disclose at column 3 line 20 that the motor can be 3 phase or 5 phase etc. It is inherent that the 3 phase motor has 120 electric degree difference between the coils.

With respect to claims 21-23, Lui et al show in figure 2 that the commutation position is about 30 degrees.

In order to overcome the 35 U.S.C. 102(e) rejection by the priority document, a translation is required with the response.

***Citation of Pertinent References***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patents or publications to Jensen et al (2002/0033684), Kawabata et al (6,479,956), Doring (5,428,273), Wu et al (2003/0062860 or 6,534,938), Butthker (5,859,512), Cameron (5,221,881), Liu et al (2004/0135530), Copeland (6,661,192 or 6,462,495), Butthker (5,859,512), Matsushiro et al (2002/0030462), Jiang et al

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(6,879,124), Park et al (6,181,093), Boyd et al (6,034,493), Cameron (5,317,243), Carobolante et al (5,306,988) and Kardash et al (6,153,989) disclose zero crossing and commutation control systems for brushless motors.

***Communication Information***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Ip whose telephone number is (571)-272-1941. The examiner can normally be reached on Monday to Friday from 6:30 am to 3:00 pm Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin, can be reached on (571)-272-2107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul Ip  
Primary Examiner  
AU 2837